

1147-5.

Window Cabinet Unit
in Home Dining Room.



EMERSON  ELECTRIC

COOLER FANS

For HOME and BUSINESS



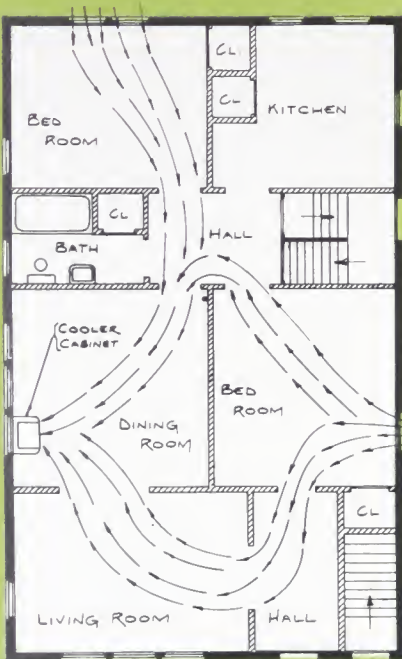
Belted Unit Installed in
Attic Gable Window.



Belted Units, 42-inch Fans,
Installed in Commercial
Foundry for Ventilation —
Two of the Eight Installed in
a Single Building.

EMERSON-ELECTRIC

For Window



Floor plan of this typical installation. All windows closed except in bedrooms and one in dining room in which fan is installed. Arrows indicate course of air movement.



Two-family apartment. Front view showing typical building where large home cooler fan, for attic installation, is not practical.



Side view of building showing fan installed in dining room window of first floor apartment.

Window-type fans are a new development in home cooling equipment. They are intended for small homes, apartments, stores, tourist courts and offices, also where several rooms in large homes may be handled as separate units. The illustrations on this and the opposite page show how a typical installation operates. The fans have a maximum capacity of 4000 cubic feet of air per minute and are capable of giving rapid circulation through the rooms in the average 5-room home of this size.

The same principle of air motion control is used in obtaining the maximum benefit from these fans as is used with the larger attic installed fan. With the fan centrally installed in the dining room, view No. 4, the fan is used to pull the air from the bedrooms, when retiring, views No. 5 and No. 6. All other doors and windows are closed. Early in the evening it may be desirable to open the living room and back bedroom windows to cause rapid circulation through the dining room and living room.

Small stores, shops and offices will find these fans highly efficient in providing rapid circulation and ventilation. The fan cabinet is ornamental and its beautiful ivory finish will harmonize with any surroundings.



New Two-Speed Fan for 1940

Now, the popular 1-speed model, introduced in 1939, has a companion in a beautiful new two-speed model. It has the same air delivery on top speed as the single speed fan, but also has a low-speed which is quiet as a whisper. A convenient pull switch, with the pull chain extending through the grille gives easy control.

New Time Switch

When it is desired to leave the fan in operation upon retiring, this new type portable switch may be used with these window home coolers to stop the fan at any predetermined time. These switches may be obtained from Electrical Supply Dealers.



HOME COOLER FANS

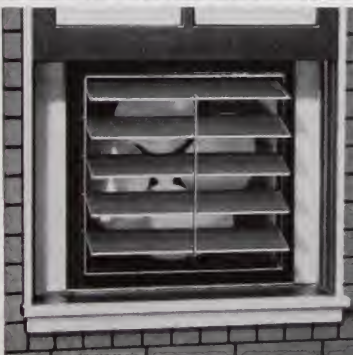
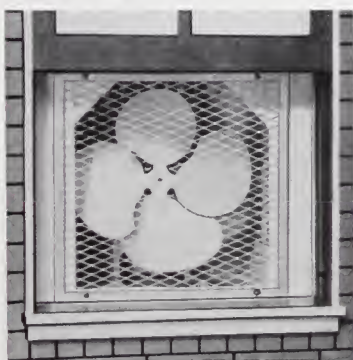
Installation

Specifications

- Motor**.....Specially wound, fan duty, split-phase; resilient hub-mounted, will not interfere with radio, quiet and economical to operate.
- Shaft**.....Solid steel, $\frac{5}{8}$ " diameter through bearings.
- Bearings**.....Oversize sleeve bearings, grooved to distribute the oil evenly. Special ball-thrust bearing in end cover to handle the thrust load of the fan.
- Lubrication**....Large reservoirs packed with wool. Cotton wicking leads oil from both upper and lower reservoirs to shaft. Oiling once a season is usually sufficient.
- Blades**.....Four blades, "Patented" overlapping design. Formed from sheet aluminum. Large Air Delivery, penetrating breeze, quiet operation. Keyed to shaft and fastened with square-head set screw.
- Cabinet and Adjustable** Sheet metal, ornamental grille — $\frac{1}{2}$ " mesh screen covering on bottom, overall dimensions of cabinet 22" wide x 16" deep x 21 $\frac{1}{2}$ " high, adjustable panels permit adjustment for windows from 26" to 35" in width.
- Switch**.....Type 74649-AH has 2-speed toggle switch on motor, with pull chain extending through grille.
- Cord and Plug**.....Nine-foot rubber covered cord and soft rubber plug—approved by Underwriters.
- Finish**.....Cabinet and Panels attractively finished in wrinkled ivory enamel with chromium plated trimmings. Motor and blades in smooth ivory finish to match.
- Adjustable Support**.....Base, lower column and coupling finished in black wrinkle. Top column finished in polished chromium, adjustable from 23" to 44".

Size Fan	Speeds	Type No.	* R.P.M.	H. P.	Volts	Cycles	Watts	# C. F. M. Free Air	Approx. Weight		Code Word	List Price
									Net	Pkd.		
18"	1	74649-AG	1140	1/6	115	60	240	4,000	64	72	CEDUT	\$49.95
18"	2	74649-AH	1140 860	1/6	115	60	250 153	4,000 3,000	64	72	CALIM	59.95
Adjustable support for use with cooler unit									6	8	CEDOS	4.00
Protective Mesh Guard for discharge side of fan									1	3	CATOW	2.95
Automatic Shutter for discharge side of fan									8	12	CEBIN	13.25

*R.P.M.—Revolutions per minute. #C.F.M.—Cubic feet of air per minute.
One-year Guarantee.



Protective Guard—Made of expanded metal, Cadmium plated, this guard is mounted on the discharge side of the cabinet (outside) and provides the safety required when the fan is installed in a location where there is any possibility of anyone coming in contact with the blades, such as in a window on a porch, or near the ground line. The same four screws which hold the adjustable panels to the cabinet are used to mount the guard.

Automatic Shutters—Where it is desired to protect the fan and also prevent the entry of insects, when the fan is not in operation, without the necessity of lowering the bottom sash of the window, this automatic shutter will prove serviceable. Each leaf is hung on corrosion-proof brass pins to assure continuous service without attention. The leaves are controlled by a counter-balanced spring action and all leaves open uniformly when the fan is started and close tightly when the fan stops.

4



Fan is centrally located in dining room. Note how it harmonizes with the other furnishings.

5



Back bedroom. The volume of air being drawn in through these windows, by the fan in the dining room, is indicated by the manner in which the curtains are being blown away from the wall. It assures comfortable sleeping on the hottest nights.

6



The side bedroom, which would be normally hard to ventilate on hot nights, as it is located only a few feet from the adjoining building, also has a steady flow of refreshing breezes as the curtains indicate. (The windows in both bedrooms were open at the same time, when these photos were taken.)

*Summer
Suffering*

BEFORE INSTALLING EMERSON-ELECTRIC HOME COOLER FAN

Heat stored in attic and walls radiates throughout the house a greater part of the night. Comfortable sleep is impossible. Morning finds you tired, listless, in no condition to face another hot day.



*Summer
Comfort...*

AFTER INSTALLING EMERSON-ELECTRIC HOME COOLER FAN

Gentle cooling breezes in any part of the house you desire. Soft breezes waft across the bed. You sleep soundly, awake refreshed, ready to enjoy the pleasures of summer. And the Emerson-Electric Home Cooler Fans are quiet in operation—cost little to operate. Don't suffer from heat this summer. Install an Emerson-Electric Cooling System now.



HOME COOLING

The Problem and the Solution

Almost everyone is familiar with the suffocating heat stored in the attic on a hot summer day. The sun, beating down on the roof, builds up temperatures of 120 to 130 degrees or more, and this heat radiates through ceilings and walls to the rooms below, often until after midnight.

At night, the outside temperature is usually 15 to 25 degrees lower than the highest daytime temperature, and the Emerson-Electric Home Cooler System simply uses the cooler outside air to provide cooling, satisfying breezes through open doors and windows.

Efficient Cooling by Air Circulation and Ventilation

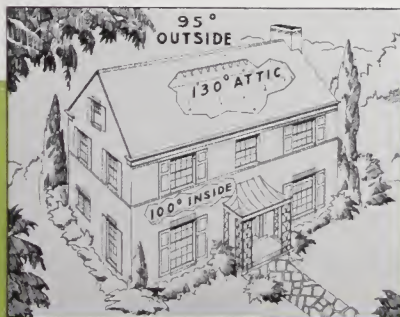
In the number (1) illustration, below, you see the condition during a normal day. In number (2) the same home, normal condition at night—both *without* the Emerson-Electric Home Cooler Attic Fan. Here the entire home is uncomfortable, hot, stuffy, irritating. In addition to the sun's heat, additional heat from cooking has most likely been added. Stored heat in ceilings and walls adds to the discomfort and instead of restful, refreshing sleep there will be tossing and turning, getting up to sit by the windows, or dragging pillows and bedding to open doors or porches. Far from a pleasant, satisfying way to spend a hot summer night.

But let's look at illustration number (3). Here's a different story. The Emerson-Electric Home Cooler Attic Fan is on the job. The most effective results are obtained from night operation, par-

ticularly in the northern sections of the country where the climate requires homes to be built weather-tight, with thick walls, weather-stripped and insulated. In such areas homes will remain comfortable a large part of the day if doors and windows are kept closed and shades drawn.

In the Southern States where the climate permits lighter construction, the inside temperature may approximate that of outdoors early in the day. Under such circumstances day-time operation of the fan may be desirable in addition to night operation, as rapid air circulation has a cooling effect even where there is no temperature change.

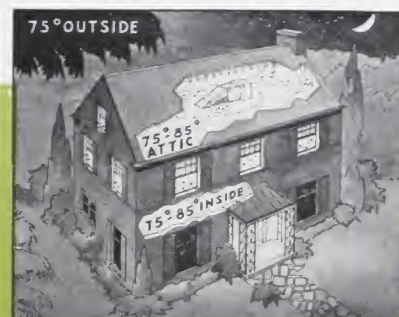
For an additional cooling effect during the day, turn on available ceiling fans, oscillating or non-oscillating electric fans, the greater air circulation will add considerably to comfort.



1 Inside temperature higher than outside. Attic temperature 120 to 130 degrees. No wonder the house is "like a bake oven."



2 Outside temperature 20 degrees lower than maximum day temperature. Inside 20 degrees higher than outside and the building is still radiating heat.



3 Emerson-Electric Home Cooler Fan provides cooling breezes throughout the house and reduces temperature for pleasant, refreshing sleep.

INSTALLATION of Home Cooler Fan with Plenum Chamber (Suction Box)

Examine carefully the illustrations below. At left, perspective elevation of a home shows the type of installation most generally used. Here the Emerson-Electric Home Cooler Fan is installed in a plenum chamber (suction box) over a shutter in the ceiling of a centrally located hallway. Right, floor plan shows location of the shutter.



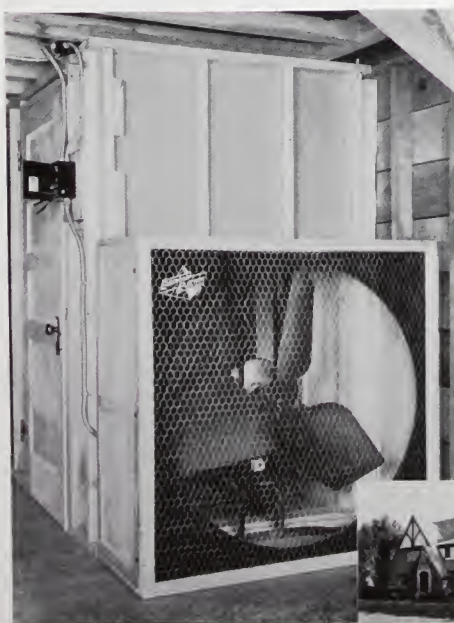
With this type of installation, outside air is drawn in through open doors and windows, up through the ceiling shutter, and is then exhausted into the attic. From here the air is discharged through windows or louvers in the gables or grided openings under the eaves. Same installation for one-, two- and three-story homes.

Emerson-Electric Home Cooler Fans for attic installation may be purchased complete with automatic ceiling shutter and all-metal plenum chamber conveniently packaged and ready for erection on the job. Or these fans may be purchased as separate units and the plenum chamber (suction box) built and erected by the installer on the job.

Installation photo on the left shows the 42-inch Home Cooler Fan installed in connection with plenum chamber and ceiling shutter. The air is exhausted through a fixed louver in front of the fan as indicated by arrows on both the interior and exterior views.

INSTALLATION of Home Cooler Fan Discharging through Wall Opening

In the Northern part of the country, where there is a definite heating problem, attics are tightly sealed against air leakage. Here, and in other homes where similar attic sealing has been accomplished, this type of Home Cooler Fan installation is suited. It is important, however, that the attic construction be carefully checked before such an installation is considered, otherwise the normal high efficiency of the Home Cooler Fan will be impaired.



Study the drawing of the 2-story house above. Here we have a stairway leading directly to the attic. Some houses have disappearing stairways for entry to the attic. In cases when the attic is tightly sealed the ceiling shutter and the plenum chamber can be eliminated. Under either of these conditions it is only necessary to open the attic stairway door or lower the disappearing stairway when the Cooler Fan is in operation. A study of the arrow indicators show how outside air enters through open windows, is drawn upward and exhausted through the wall opening. When the Cooler Fan is operated during the day for ventilation of the attic only, attic stairway or other means of entry to the attic must be kept closed.



As shown in attic photo above at right, the Home Cooler Fan is connected directly to the window opening in the wall. This opening must be at least the same total area as the fan. The window closing the opening is operated manually. An automatic outside shutter may be used to close the fan from rain, snow, sleet or wind when not in operation, and to close the opening to prevent heat losses during the winter.

Another type of installation is illustrated on the left. Here, a plenum chamber is built around the stair well leading to the attic. The air is exhausted into the attic and escapes through open windows, or louver openings in eaves or gables.

THE FANS FOR LARGE VOLUME VENTILATION



A practically unlimited variety of applications in industrial, commercial and institutional buildings has been developed for these powerful fans.

They are used in Foundries to exhaust excessive heat, gases and smoke; in Variety Stores, Auto-Sales Rooms, Mortuaries, Laboratories, Bakeries, and numerous other types of buildings to provide cool comfort for employees and patrons.

Note the several different methods of installation on these pages. Some fans are mounted in window openings, others in wall openings with automatic shutters, others in penthouse chambers with fixed louver openings in the walls for venting the air.

With fan capacities ranging from 8,500 to 16,700 C. F. M. it is a simple matter to provide the correct size fan or multiple units for any given requirement, from the average size store to the huge industrial plant.

Mounting accessories include plenum chambers, automatic wall-type shutters and automatic ceiling shutters, for all three sizes of fans.

The fan housing has mounting holes drilled in the face to facilitate mounting at wall opening. Motor location and mounting simplifies servicing and the ball-bearing fan shaft permits continuous operation without undue wear and with only infrequent maintenance and lubrication.

Emerson-Electric Engineers will gladly cooperate in preparing fan specifications to overcome any bad-air condition. Merely furnish a rough layout of the area, giving important details, such as measurements, location of openings, direction of prevailing winds, purpose for which used and number of people normally occupying the area.

Concise Picture Facts

1. Auto Salesroom has two 36-inch fans installed over show windows. Single-story, flat roof building, formerly very hot in summer.
2. Variety Stor has 42-inch fan installed in back wall of store, pulling air through front doors and transoms.
3. Large Foundry has eight 42-inch fans installed in penthouses on the roof.
4. Wholesaler's Display Sample Room has two 42-inch fans behind an ornamental grille to provide proper ventilation at all times.
5. A modern Tavern keeps its patrons comfortable with a 42-inch fan installed in the back wall. Note that air circulators are also used to speed up circulation of the air.
6. A modern Bakery uses two 42-inch fans installed in uniquely built penthouses on the roof. The pivoted doors are controlled manually. Note the reserve spaces for additional fans should they be desired later.
7. A modern Laboratory Building installs two 48-inch fans with plenum chambers in attic. Note shutters in second floor ceiling. Air is forced out through fixed louvers on all four sides of the attic.



1



2



8



3

IN BUSINESS AND INDUSTRIAL BUILDINGS

The present interest in efficient ventilation is due to the awakening of modern business to its importance. Every business has a bad-air condition, in some degree. It effects manufacturing costs, employe morale, employe health, and even sales in a strictly commercial business.

In keeping with tradition, Emerson-Electric introduced its first belt-driven fans a few years ago, only after thorough study and tests to determine the proper type of fans needed. The fans were then designed to meet the definite service requirements.

The pictures, on these pages, illustrate but a few of the many types of commercial and industrial applications in which they are giving satisfactory service. They indicate the universally wide acceptance of the benefits of adequate ventilation and emphasize how successfully Emerson-Electric belt-driven fans have met commercial and industrial requirements.

Opens New Fields in Business and Industry

Where heretofore cost of equipment and installation has discouraged many smaller industrial plants, stores, shops, restaurants, bakeries, offices, and the like, from installing adequate ventilating equipment, they can now buy large-volume, quality-built Emerson-Electric fans at extremely reasonable prices. Good business needs good air, and good air makes good business. People are more wide-awake, more willing to work or buy, in an atmosphere where the air is fresh and clear.

New Automatic Shutters with Counter-balancing Springs

To close the opening automatically when the fan is mounted on an outside wall a shutter (shown below) is installed on the outside and closes the opening when the fan is not in operation. The new double-spring action gives positive control. These springs open all the leaves when the fan starts and closes them tightly when the fan is stopped.



The automatic shutter also serves to protect the fan from rain, snow, sleet or wind and to prevent heat losses during the winter, when the fan is not in operation. The number of leaves varies with the size of the shutter.

The shutter leaves are made of aluminum and are individually hung on corrosion-proof brass pins to assure continuous service without attention.

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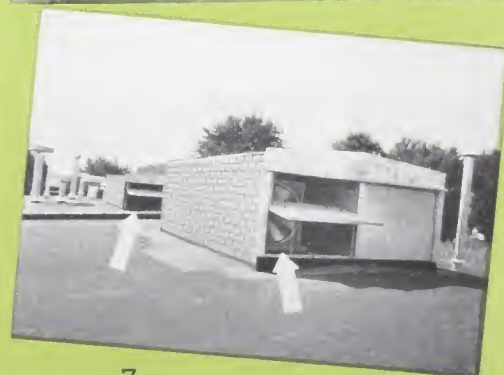
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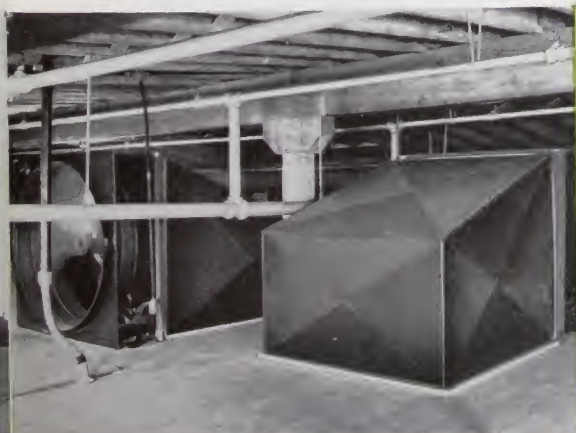
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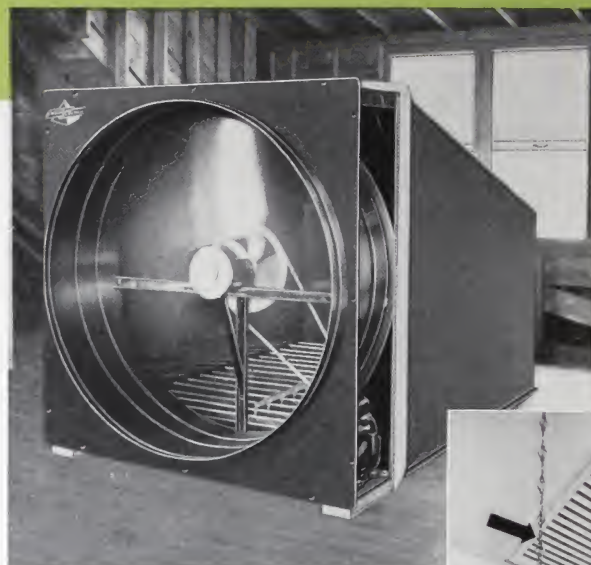


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Back view of Emerson-Electric Home Cooler Fans in 36-inch, 42-inch and 48-inch sizes.



Top view shows fan installed in attic, fan in operation and with shutter open. It exhausts through open windows both in front and back of the fan. Side view shows shutter installed in hall ceiling in open position, with fan in operation.



Specifications and Prices

Frame: Steel, welded construction, firmly braced.

Motor: "KS" Capacitor-Start, induction-run, resilient (rubber) hub-mounted with built-in thermal-overload motor protector. Over-size sleeve bearings grooved to distribute the oil evenly. Slotted base for adjustment of belt tension.

Fan Blade Assembly: Three blades, perfectly balanced. Steel shaft operates in two grease-packed, thrust-type, ball bearings, cushioned on rubber.

Belt: V-type, sure-traction, non-stretching.

Finish: Frame and motor finished in black enamel, blades in green enamel.

Accessories Furnished With Fan: Sponge-rubber cushion blocks for insulating fan housing from floor. Canvas boot for connecting fan housing to plenum chamber.

Type KS67-UB 42-inch, 2-speed Fan. Accessories also include 2-speed flush wall switch for remote control.

PLENUM CHAMBER AND CEILING SHUTTER

Plenum Chamber: All metal—shipped unassembled. Easily erected. (See page opposite.)

Ceiling Shutter: Spring counter-balanced type with fusible link. Shipped with unfinished wood ceiling moulding. Ready for installation. (See page opposite.)

Automatic Exhaust Shutters

For Fan Size	Pkd. Weight	Code Word	List Price
36"	48	JUSAF	\$40.00
42"	60	JUDES	46.50
48"	78	JUREF	53.00

Size Fan	Type No.	Speeds	R. P. M.		H. P.	Single-Phase		Watts	C. F. M. Free Air	Fan Only				Fan With Metal Plenum Chamber and Automatic Ceiling Shutter			
			Motor	Fan		Volts	Cycles			Weight		Code Word	List Price	Weight		Code Word	List Price
										Net	Pkd.			Net	Pkd.		
36"	KS60-TV	1	1725	357	1/4	115	60	355	8,500	130	195	TUHEB	\$94.50	250	390	DEGAV	\$144.50
42"	KS67-TW	1	1725	320	1/3	115-220	60	432	11,975	170	238	TUCEW	116.50	350	533	DERUK	174.00
42"	KS67-UB	2	1700	312	1/3	115	60	450	11,700	170	238	TOSIF	132.50	350	533	DESUL	190.00
48"	KS80-SE	1	1140	209	1/2	115-220	60	195	8,250	238	308	TULOH	164.50	463	678	DESOK	234.50
			1725	270				659	16,700								

*C. F. M.—Cubic feet of air per minute. Certified Test Values obtained in tests conducted by the Texas Engineering Experiment Station of the Agricultural and Mechanical College of Texas, College Station, Texas. Tests were made in strict accordance with the provisions of the Standard Code for Centrifugal and Axial Flow Fans, as established by The American Society of Heating and Ventilating Engineers, and the National Association of Fan Manufacturers.

Plenum chambers and ceiling shutters NOT sold separately.
R. P. M.—Revolutions per minute.

Accessories for Attic Fan Installation

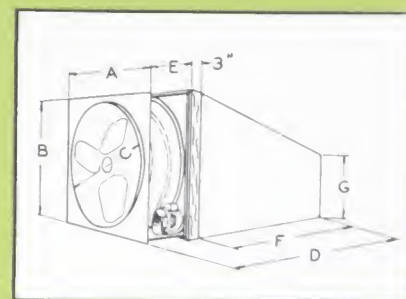
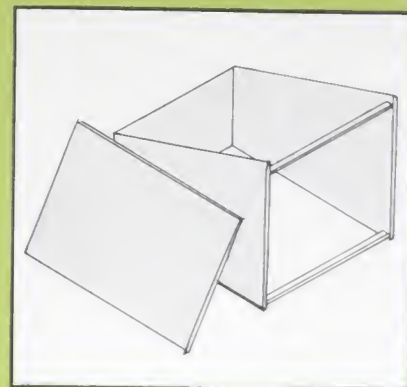
Plenum Chamber

The metal sides, back, and front brace are held rigidly in place by slip-joint construction. A cross member on the bottom, at the front, completes the chamber casing. The flanged edge around the sides is either nailed or screwed to the floor or joists. The fan is located about three inches from the plenum chamber and the canvas connector placed over the opening and fastened with draw strings. Complete installation instructions accompany each fan unit.

Plenum Chamber and Fan

This table shows the approximate dimensions of the fan when used with plenum chamber, to facilitate determining location in the home. Detailed information accompanies each unit.

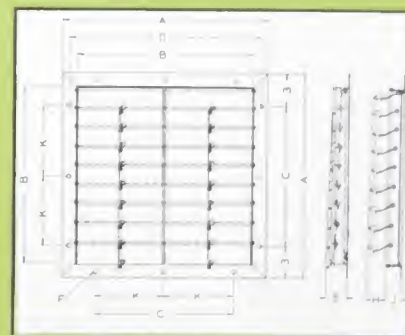
Fan Size	A	B	D	E	F	G
36"	42 1/4"	42 1/4"	70 3/4"	14 3/4"	53"	24"
42"	48 1/4"	48 1/4"	79"	16"	60"	27"
48"	55 1/4"	55 1/4"	88 1/8"	17 1/2"	67 5/8"	30"



Automatic Outside Wall Shutters

Each of the two rows of aluminum leaves have a double-spring counter-balancing action which gives positive control. These springs open all the leaves when the fan starts and closes them tightly when the fan is stopped. Leaves are hung on corrosion-proof bronze pins. They prevent the entry of the elements and close the opening satisfactorily during the time when the fan is not being used.

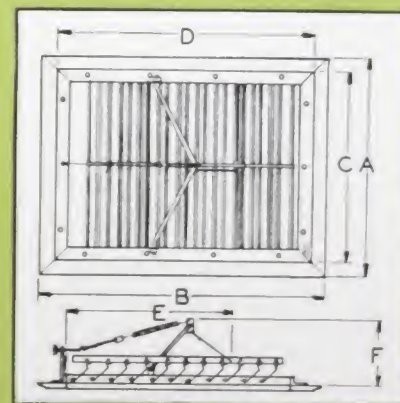
For Fan Size	For Fan Type	A	B	C	D	E	F No. of Holes	Size of Holes	H	J	K	No. Leaves Each Side
36"	KS60-TV	39"	36"	33"	38"	2"	12	1/4"	4"	1 1/2"	16 1/2"	9
42"	KS67-TW	45"	42"	39"	44"	2"	12	1/4"	4"	2"	19 1/2"	10
42"	KS67-UB	45"	42"	39"	44"	2"	12	1/4"	4"	2"	19 1/2"	10
48"	KS80-SE	51"	48"	45"	50"	2"	12	1/4"	4"	2"	22 1/2"	12



Automatic Ceiling Shutters

Ceiling shutters have a counter-balancing spring arrangement to assure positive action. They open automatically when the fan starts and close when the fan stops. An added feature is a fusible link, approved by Underwriters, inserted in the counter-balance chain. This link gives positive protection in case of fire, closing the shutter even though the fan is in operation.

For Fan Size	For Fan Type	A	B	C	D	E	F
36"	KS60-TV	43 1/4"	54 1/2"	39 3/4"	51"	28"	11 3/4"
42"	KS67-TW	49 1/4"	61 1/2"	45 3/4"	58"	29 3/4"	11 1/2"
42"	KS67-UB	49 1/4"	61 1/2"	45 3/4"	58"	29 3/4"	11 1/2"
48"	KS80-SE	56 1/4"	69 1/8"	52 3/4"	65 3/8"	33 1/2"	13 1/4"



Long-life Features...

EMERSON-ELECTRIC Belt-Driven Cooler Fans



Capacitor Motors Cut Current Cost

Emerson-Electric Cooler Fans are powered with specially engineered capacitor-start, induction-run motors. They start the fan without stress or strain, and come up to speed quickly. The illustration at the left, shows the resilient rubber hub-mounting arrangement for insulating operation noises from the housing.

The motors have built-in, thermal-overload protectors. This protector automatically prevents injury to the motor due to overloading from any cause such as low voltage or a tight belt. The protector resets itself after the windings have cooled. As may be seen, the motor, on all types, is outside of the air stream and easily accessible for servicing without entering or disturbing the plenum chamber, when the fan is used in such an installation. Belt tension may be increased or decreased by merely adjusting the position of the motor forward or backward on the slotted base.

Each motor is equipped with outlet box for connection of rigid or flexible conduit.



Resilient Mounted Fan Shaft

Here is a very important and distinctive feature and one which adds years of service to Emerson-Electric Cooler Fans. The shaft operates on grease-packed, thrust-type ball bearings, and the entire assembly is resilient (rubber), hub-mounted, similar to the motor mounting. The bearings have sufficient lubricant for approximately 6000 hours operation, or three average seasons, before relubrication is necessary.

Balanced Blades

Blade design was given special consideration for large volume air delivery at low operating speed, and for quietness. Each set of blades is individually balanced for smooth, vibrationless operation. Both pulley and blade are mounted securely on the fan shaft with key ways and set screws.



Flush-type, Two-Speed Wall Switch

Type KS67-UB, 2-speed fan is furnished with a flush, wall-type toggle switch with high-off-low positions plainly etched on the brass plate. This switch may be installed in a standard outlet box.



Time Switch

It is often desirable to keep fans in operation after retiring, or in places of business after closing time. Automatic switches which may be set to keep the fan operating for any desired length of time and then to stop the fan are obtainable from most Electrical Supply Dealers, at reasonable cost.